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CLAIMS

What is claimed is:

1. A communication device having a system for dynamically varying the operating current of at least part of a multi-mode transmitter comprising:

a mode selector for selecting a mode of operation of the multi-mode transmitter, wherein the mode selector is configured to select a mode responsive to a command received over a user interface; and

a controller that adjusts the operating current of at least part of the multi-mode transmitter responsive to the mode selector, the controller further including first, second, and third sub-modules, wherein

the first sub-module is configured to determine a base linearity responsive to the selected mode, where the base linearity is responsive to a crest factor associated with the selected mode,

the second sub-module is configured to adjust the base linearity responsive to a desired transmit power, and

the third sub-module is configured to determine the operating current responsive to the adjusted base linearity.

2. The communication device of claim 1 wherein the mode selector is configured to select a mode from the following group: voice transmission, low data rate transmission, medium data rate transmission, and high data rate transmission.

3. The communication device of claim 1 wherein the first sub-module is configured to determine the base linearity responsive to accesses to first and second lookup tables, where the first lookup table associates a crest factor with each possible selected mode, and the second lookup table associates a required base linearity with each possible crest factor.

4. The communication device of claim 1 wherein the multi-mode transmitter is a spread spectrum transmitter.

5. The communication device of claim 4 wherein the spread spectrum transmitter is a code division multiple access transmitter.

6. The communication device of claim 4 wherein the spread spectrum transmitter has a radio frequency front end and the controller is configured to dynamically determine the operating current for at least part of the radio frequency front end.

7. The communication device of claim 6 wherein the radio frequency front end of the spread spectrum transmitter includes an ultra high frequency mixer and a pre-driver amplifier, and the controller is configured to dynamically determine the operating current of the ultra high frequency mixer and the pre-driver amplifier.

8. The communication device of claim 1 wherein the communication device is a mobile unit.

9. The communication device of claim 8 wherein the desired transmit power of the multi-mode transmitter is determined by a base station in communication with the mobile unit and exercising closed loop power control over the mobile unit.

10. The communication device of claim 8 wherein the mobile unit is a cellular telephone.

11. A system comprising:

a mode selector for selecting a mode of operation of a transmitter; and

a controller that adjusts the operating current of at least part of the transmitter responsive to the mode selector.

12. The system of claim 11 wherein the mode selector is configured to select a mode responsive to a command received over a user interface.

13. The system of claim 12 wherein the mode selector is configured to select a mode from the following group: voice transmission, low data rate transmission, medium data rate transmission, and high data rate transmission.

14. The system of claim 11 wherein the controller includes first, second, and third sub-modules, wherein the first sub-module is configured to determine a base linearity responsive to the selected mode, the second sub-module is configured to adjust the base linearity responsive to a desired transmit power, and the third sub-module is configured to determine the operating current responsive to the adjusted base linearity.

15. The system of claim 14 wherein the first sub-module is configured to determine the base linearity responsive to a crest factor associated with the selected mode.

16. The system of claim 15 wherein the first sub-module is configured to determine the base linearity responsive to accesses to first and second lookup tables, where the first lookup table associates a crest factor with each possible selected mode, and the second lookup table associates a required base linearity with each possible crest factor.

17. The system of claim 11 wherein the transmitter is a spread spectrum transmitter.

18. The system of claim 17 wherein the spread spectrum transmitter is a code division multiple access transmitter.

19. The system of claim 17 wherein the spread spectrum transmitter has a radio frequency front-end and the controller is configured to dynamically determine the operating current for at least part of the radio frequency front end.

20. The system of claim 19 wherein the radio frequency front-end of the spread spectrum transmitter includes an ultra high frequency mixer and a pre-driver amplifier, and the controller is configured to dynamically determine the operating current of the ultra high frequency mixer and the pre-driver amplifier.

21. The system of claim 11 wherein the system is a communication device.

22. The system of claim 21 wherein the communication device is a mobile unit.

23. The system of claim 22 wherein the desired transmit power of the multi-mode transmitter is determined by a base station in communication with the mobile unit and exercising closed loop power control over the mobile unit.

24. The system of claim 22 wherein the mobile unit is a cellular telephone.

25. A communication device having a system for dynamically varying the operating current of at least part of a multi-mode transmitter comprising:

means for selecting a mode of operation of the multi-mode transmitter, wherein the selector means is configured to select a mode responsive to a command received over a user interface; and

means for adjusting the operating current of at least part of the multi-mode transmitter responsive to the selector means, wherein the adjusting means further includes:

means for determining a base linearity responsive to the selected mode, where the base linearity is responsive to a crest factor associated with the selected mode;

means for adjusting the base linearity responsive to a desired transmit power; and

means for determining the operating current responsive to the adjusted base linearity.

26. The communication device of claim 25 wherein the selector means selects a mode from the following group: voice transmission, low data rate transmission, medium data rate transmission, and high data rate transmission.

27. The communication device of claim 25 wherein the determining the base linearity means is responsive to accesses to first and second lookup tables, wherein the first lookup table associates a crest factor with each possible selected mode, and the second lookup table associates a required base linearity with each possible crest factor.

28. A system comprising:

means for selecting a mode of operation of a transmitter; and

means for adjusting the operating current of at least part of the transmitter responsive to the selector means.

29. The system of claim 28 wherein the selector means is configured to select a mode responsive to a command received over a user interface.

30. The system of claim 29 wherein the selector means selects a mode from the following group: voice transmission, low data rate transmission, medium data rate transmission, and high data rate transmission.

31. The system of claim 28 wherein the adjusting means further includes

means for determining a base linearity responsive to the selected mode;

means for adjusting the base linearity responsive to a desired transmit power; and

means for determining the operating current responsive to the adjusted base linearity.

32. The system of claim 31 wherein the determining means determines the base linearity responsive to a crest factor associated with the selected mode.

33. The system of claim 32 wherein the determining a base linearity means determines the base linearity responsive to accesses to first and second lookup tables, where the first lookup table associates a crest factor with each possible selected mode, and the second lookup table associates a required base linearity with each possible crest factor.

34. The system of claim 28 wherein the transmitter is a spread spectrum transmitter.

35. The system of claim 34 wherein the spread spectrum transmitter is a code division multiple access transmitter.

36. The system of claim 34 wherein the spread spectrum transmitter has a radio frequency front-end and the adjusting means further includes means for dynamically determining the operating current for at least part of the radio frequency front-end.

37. The system of claim 36 wherein the radio frequency front-end of the spread spectrum transmitter includes an ultra high frequency mixer and a pre-driver amplifier, and the adjusting means further includes means for dynamically determining the operating current of the ultra high frequency mixer and the pre-driver amplifier.

38. The system of claim 28 wherein the system is a communication device.

39. The system of claim 38 wherein the communication device is a mobile unit.

40. The system of claim 39 wherein the desired transmit power of the transmitter is determined by a base station in communication with the mobile unit and exercising closed loop power control over the mobile unit.

41. The system of claim 39 wherein the mobile unit is a cellular telephone.

42. A method for dynamically varying the operating current of at least part of a transmitter, the method comprising:

selecting a mode of operation for the transmitter; and

adjusting the operating current of at least part of the transmitter in response to selecting the mode of operation.

43. The method of claim 42 wherein the adjusting step further includes:

determining a base linearity responsive to the selected mode of operation;

adjusting the base linearity responsive to a desired transmit power; and

setting the operating current responsive to the adjusted base linearity.

44. The method of claim 43 wherein the selecting step further includes selecting the mode from the following group: voice transmission; low data rate transmission; medium data rate transmission; and high data rate transmission.

45. The method of claim 43 wherein the determining step further includes:

determining a crest factor for the selected mode; and

determining the base linearity responsive to the crest factor.

46. The method of claim 42 further comprising applying the operating current to at least part of the transmitter.

47. The method of claim 46 further including applying the operating current to at least part of a radio frequency front-end of the transmitter.

48. A signal-bearing medium having software for dynamically varying the operating current of at least part of a transmitter, the signal-bearing medium comprising:

logic configured to select a mode of operation for the transmitter; and

logic configured to adjust the operating current of at least part of the transmitter in response to selecting the mode of operation.

49. The signal-bearing medium of claim 48 wherein the adjusting logic further includes:

logic configured to determine a base linearity responsive to the selected mode of operation;

logic configured to adjust the base linearity responsive to a desired transmit power; and

logic configured to set the operating current responsive to the adjusted base linearity.

50. The signal bearing medium of claim 49 wherein the selecting logic further includes logic configured to select the mode from the following group: voice transmission; low data rate transmission; medium data rate transmission; and high data rate transmission.

51. The signal-bearing medium of claim 49 wherein the determining logic further includes:

logic configured to determine a crest factor for the selected mode; and

logic configured to determine the base linearity responsive to the crest factor.

52. The signal-bearing medium of claim 48 further comprising logic configured to apply the operating current to at least part of the transmitter.

53. The signal-bearing medium of claim 52 further including logic configured to apply the operating current to at least part of a radio frequency front-end of the transmitter.

54. A computer data signal embodied in a carrier wave comprising:

a mode selection source code segment comprising means for selecting a mode of operation for the transmitter; and

an adjustment source code segment comprising means for adjusting the operating current of at least part of the transmitter in response to selecting the mode of operation.

55. The computer data signal of claim 54 wherein the adjustment source code segment further includes:

determining source code segment comprising means for determining a base linearity responsive to the selected mode of operation;

adjustment source code segment comprising means for adjusting the base linearity responsive to a desired transmit power; and

setting source code segment comprising means for setting the operating current responsive to the adjusted base linearity.

56. The computer data signal of claim 55 wherein the selecting source code segment further includes a selecting source code segment for selecting the mode from the following group: voice transmission; low data rate transmission; medium data rate transmission; and high data rate transmission.

57. The computer data signal of claim 55 wherein the determining source code segment further includes:

determining source code segment for determining a crest factor for the selected mode; and

determining source code segment for determining the base linearity responsive to the crest factor.

58. The computer data signal of claim 57 further including logic configured to apply the operating current to at least part of a radio frequency front-end of the transmitter.

59. A computer-readable medium having software for dynamically varying the operating current of at least part of a transmitter, the computer-readable medium comprising:

logic configured to select a mode of operation for the transmitter; and

logic configured to adjust the operating current of at least part of the transmitter in response to selecting the mode of operation.

60. The computer-readable medium of claim 59 wherein the adjusting logic further includes:

logic configured to determine a base linearity responsive to the selected mode of operation;

logic configured to adjust the base linearity responsive to a desired transmit power; and

logic configured to set the operating current responsive to the adjusted base linearity.

61. The computer-readable medium of claim 60 wherein the selecting logic further includes logic configured to select the mode from the following group: voice transmission; low data rate transmission; medium data rate transmission; and high data rate transmission.

62. The computer-readable medium of claim 60 wherein the determining logic further includes:

logic configured to determine a crest factor for the selected mode; and

logic configured to determine the base linearity responsive to the crest factor.

63. The computer-readable medium of claim 62 further including logic configured to apply the operating current to at least part of a radio frequency front end of the transmitter.

64. A signal-bearing medium having software for dynamically varying the operating current of at least part of a multi-mode transmitter, the signal bearing medium comprising:

logic configured to select a mode of operation of the multi-mode transmitter, wherein the selector logic is configured to select a mode responsive to a command received over a user interface;

logic configured to adjust the operating current of at least part of the multi-mode transmitter responsive to the selector means, wherein the adjusting logic further includes

logic configured to determine a base linearity responsive to the selected mode, where the base linearity is responsive to a crest factor associated with the selected mode,

logic configured to adjust the base linearity responsive to a desired transmit power, and

logic configured to determine the operating current responsive to the adjusted base linearity.